

**COMPARISON OF DIVERSITY AND ABUNDANCE OF
HYMENOPTERAN PARASITIDS IN ECO-FRIENDLY HOME
GARDENS AND CONVENTIONAL HOME GARDENS IN
HAMBANTHOTA DISTRICT OF SRI LANKA**

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Conservation of biodiversity plays a key role in long term sustainability of agro-ecosystems. Agricultural intensification and external input oriented farming, such as pesticides and fertilizers, have greatly diminished the biodiversity. Eco-friendly farm practices including application of organic manure, enhanced plant diversity, using soil and water conservation measures and biological control of insect pests are useful to mitigate the negative impacts of intensive agricultural practices. Hymenopteran parasitoids are important biological control agents of various insect pests. *In situ* conservation of natural enemies has been the focus of eco-friendly home gardening among other objectives. However, impact of eco-friendly home garden practices on parasitoid conservation has been poorly studied locally. Therefore, a study was conducted to assess the diversity and abundance of hymenopteran parasitoids in different home gardens in three villages: Kumaragama, Katuwanayaya, Elisonkanda located in Hambantota district, during 2009-2012. In each village eight home gardens were selected and four of those were maintained as eco-friendly home gardens, and others were maintained as conventional home gardens. The pests of eco-friendly home gardens were managed by removing infestations, dusting of wood ash, spraying of soap water, adding biochar, maintaining flowering border plants and mulching. Cowpea, *Vigna unguiculata* (L.), was cultivated in a section of each home garden. Hymenopteran parasitoids were sampled from cowpea fields using sweep nets. The captures were preserved in 70% ethanol followed by card mounting and identification. The data were analyzed using chi square test and Shannon-Weaver diversity index (H') was calculated to compare the diversities. A total of 81 parasitoids were collected, belonged to five families: Aphelinidae, Braconidae, Chalcididae, Ichneumonidae, and Trichogrammatidae. Family Trichogrammatidae was the most abundant ($N=20$) parasitoid group followed by family Braconidae and Ichneumonidae. The abundance of parasitoids at each family level was significantly higher ($X^2=12.250$ $df=5.00$ $P<0.05$) in eco-friendly home gardens, compared to the conventional home gardens. The parasitoid abundance did not vary significantly among sampling locations; a uniform distribution of parasitoids was recorded across the sampling sites. The diversity of parasitoid was higher in eco-friendly gardens in all the locations. The highest parasitoid diversity was recorded from the home gardens of Kumaragama ($H'=1.356$) and the lowest recorded from the home gardens of Katuwanayaya ($H'=1.213$). The management practices followed in eco-friendly home gardens facilitated the conservation of hymenopteran parasitoids in terms of abundance and diversity.